ResMed

VPAP™ IV
VPAP™ IV ST

POSITIVE AIRWAY PRESSURE DEVICE

User Guide

English

RESMED

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Introduction

The VPAP™ IV and the VPAP™ IV ST are intended to provide non-invasive ventilation for patients with respiratory insufficiency or obstructive sleep apnoea (OSA), in the hospital or home.

Contraindications

Positive airway pressure therapy may be contraindicated in some patients with the following pre-existing conditions:

- severe bullous lung disease
- pneumothorax or pneumomediastinum
- pathologically low blood pressure, particularly if associated with intravascular volume depletion
- dehydration
- cerebrospinal fluid leak, recent cranial surgery or trauma.

Adverse Effects

Patients should report unusual chest pain, severe headache or increased breathlessness to their prescribing physician. An acute upper respiratory tract infection may require temporary discontinuation of treatment.

The following side effects may arise during the course of therapy with the device:

- drying of the nose, mouth or throat
- nosebleed
- bloating
- ear or sinus discomfort
- eye irritation
- skin rashes.

WARNING
Read the entire manual before using these VPAP devices.

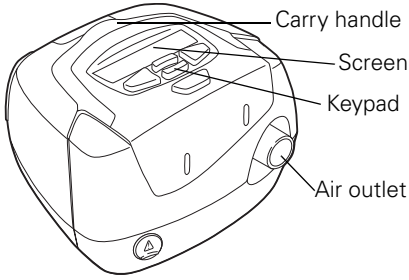
The VPAP System

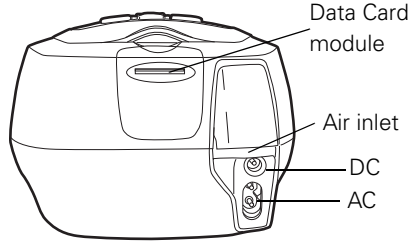
Both the VPAP IV and the VPAP IV ST systems comprise the following elements:

- VPAP device
- 2 m air tubing
- Power cord
- Travel bag
- ResScan™ Data Card
- ResMed Oxygen Connector Port.

Optional components include:

- 3 m air tubing
- DC/DC Converter 24V/50W.





Masks

The following ResMed mask systems are recommended for use with these devices:

Mask Type	Name
Nasal Masks	• Mirage Vista™ Nasal Mask • Ultra Mirage™ Nasal Mask • Ultra Mirage™ II Nasal Mask • Mirage Activa™ Nasal Mask • Mirage Micro™ Nasal Mask
Nasal Pillows Systems	• Mirage Swift™ Nasal Pillows System • Mirage Swift™ II Nasal Pillows System
Full Face Masks	• Mirage™ Liberty Full Face Mask • Mirage™ Quattro Full Face Mask • Ultra Mirage™ Full Face Mask

For information on using masks, see your mask manual. For the latest available masks, see www.resmed.com.

Humidifier

If you are experiencing dryness of the nose, throat or mouth, the H4i heated humidifier is recommended for use with these VPAP devices.

WARNING

- Only ResMed mask systems are compatible for use with these VPAP devices.
- Only the H4i is compatible for use with these VPAP devices.

ResScan Data Card

The ResScan Data Card may be used with these VPAP devices either to help your clinician to monitor your treatment or to provide you with updates to your device settings.

Supplemental Oxygen

The VPAP IV and VPAP IV ST are designed to be compatible with up to 15 L/min of supplemental oxygen.

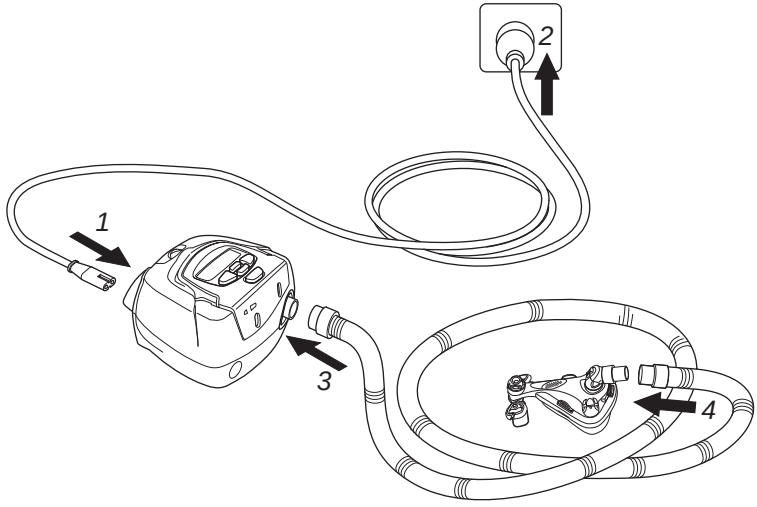
At a fixed flow rate of supplemental oxygen flow, the inhaled oxygen concentration will vary, depending on the pressure settings, patient breathing pattern, mask selection, and the leak rate.

WARNING
Always use the ResMed Oxygen Connector Port when adding supplemental oxygen at the flow generator outlet.

Using the VPAP IV and VPAP IV ST

Setting up your VPAP

1. Connect the power cord to the socket at the rear of your VPAP.
2. Plug the other end of the power cord into the power outlet.
3. Connect one end of the air tubing firmly onto the air outlet.
4. Connect the assembled mask system to the free end of air tubing. For information on assembling your mask, see your mask manual.



WARNING
- Make sure the power cord and plug are in good condition and the equipment is not damaged.
- Only ResMed air tubing should be used with the device. A different type of air tubing may alter the pressure you actually receive, reducing the effectiveness of your treatment.
- Blocking the hose and/or air inlet of the device while in operation could lead to overheating of the device.

CAUTION

- Be careful not to place the device where it can be bumped or where someone is likely to trip over the power cord.
- If you put the device on the floor, make sure the area is free from dust and clear of bedding, clothes or other objects that could block the air inlet.

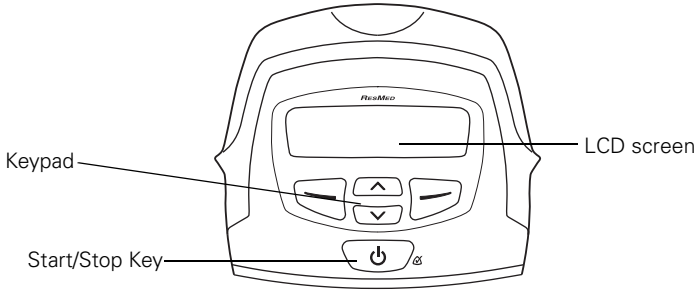
Attaching a H4i Humidifier

The H4i humidifier attaches to the front of a VPAP IV or VPAP IV ST device to provide heated humidification. These devices automatically detect the presence of the H4i and no other accessories are required for its use. For more information on using your H4i, please refer to the H4i user guide.

WARNING

- Make sure that the water chamber is empty and thoroughly dried before transporting the H4i.
- When using the travel bag, always separate the VPAP unit and the H4i and place the H4i in its pouch.

How to Use the Control Panel



The control panel of your VPAP device includes an LCD screen which displays the menus and treatment screens as well as a keypad for navigating through the menus and delivering treatment. The keypad has the following keys:

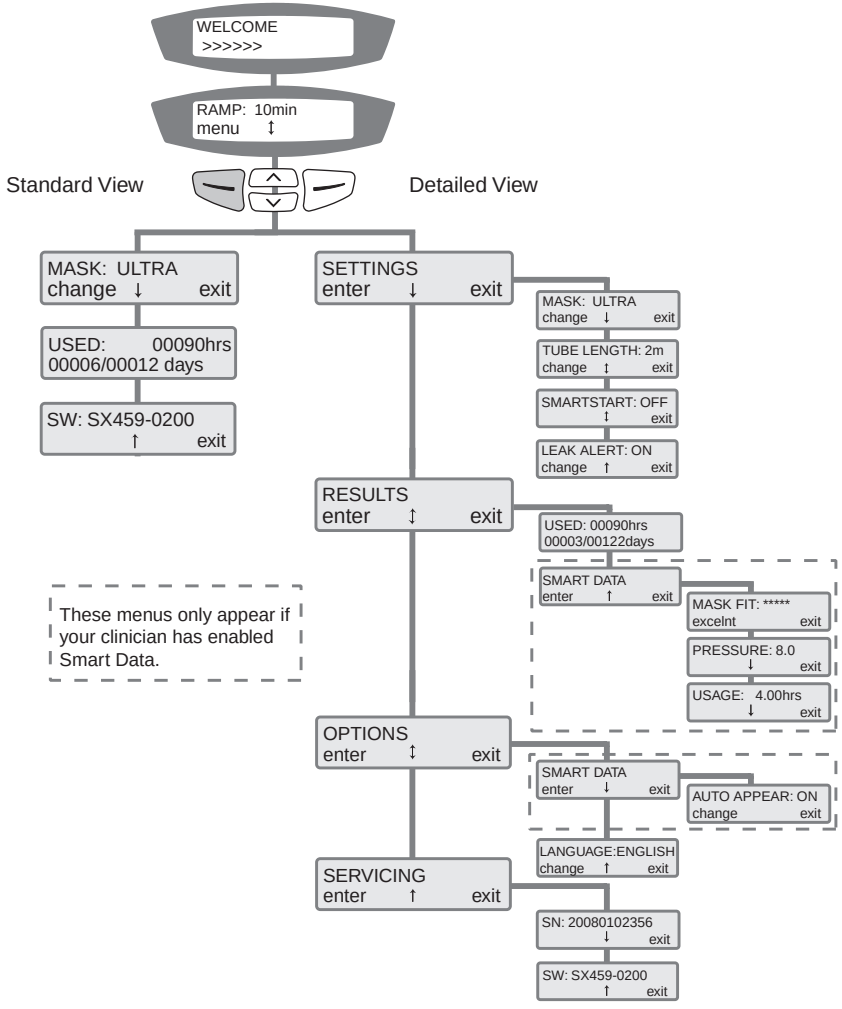
Key	Function
Start/Stop	Starts or stops treatment. Extended hold for at least three seconds starts the **mask-fit** feature.
Up	Allows you to increase settings options and scroll through the menu.
Down	Allows you to decrease settings options and scroll through the menu.
Left	Performs the function indicated by the guiding text displayed above it on the LCD screen. Guiding text includes **menu**, **change**, and **apply**.
Right	Performs the function indicated by the guiding text displayed above it on the LCD screen. Guiding text includes **exit** and **cancel.**

Using the Menus

The VPAP IV and VPAP IV ST provide a set of functions which are arranged in menus and submenus. Via the LCD screen, the menus and submenus allow you to view and change the settings for a particular function. To navigate and make selections:

1. Press ^ or v to scroll through items within a level.
2. Press — to enter a submenu and to apply an option choice.
3. Press — to navigate out of a menu or submenu and to exit without changing options.

Your clinician has preset the menu to either a standard view or a detailed view. The following illustration summarises these views:



How to Select the Mask Type

Scroll to MASK and select . Press or until you see the setting you require. The following table shows the setting that should be selected for each mask:

Settings	Mask
ULTRA	Ultra Mirage Nasal Mask Ultra Mirage II Nasal Mask
MIR FULL	Mirage Liberty Full Face Mask Mirage Quattro Full Face Mask Ultra Mirage Full Face Mask
ACTIVA	Mirage Activa Nasal Mask
SWIFT	Mirage Swift Nasal Pillows System Mirage Swift II Nasal Pillows System
STANDARD	Mirage Vista Nasal Mask Mirage Micro Nasal Mask
MIRAGE	Mirage Nasal Mask

SmartStart™

If your clinician has enabled SmartStart/Stop, your device will start automatically when you breathe into your mask and stop automatically when you take your mask off.

Starting Treatment

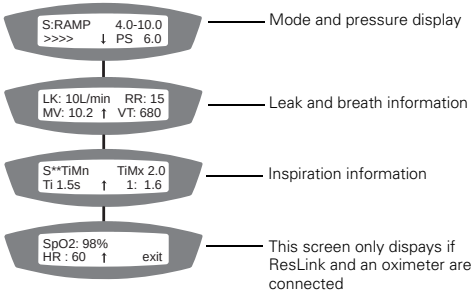
1. Make sure the power is on.
   The product name is displayed briefly on the LCD screen, then the standby (Ramp) screen appears. The key and LCD backlights also turn on.
2. Fit your mask as described in the mask user instructions.

WARNING
A mask should not be used unless your VPAP device is turned on and operating properly.

3. Alter the ramp time if required.
4. To start therapy, simply breathe into the mask or press .
5. Lie down and arrange the air tubing so that it is free to move if you turn in your sleep.

6 After starting therapy, an introductory treatment screen will display:

S mode example


S:RAMP 4.0-10.0
>>>> ↓ PS 6.0
Mode and pressure display
LK: 10L/min RR: 15
MV: 10.2 ↑ VT: 680
Leak and breath information
S**TiMn TiMx 2.0
Ti 1.5s ↑ 1: 1.6
Inspiration information
SpO2: 98%
HR : 60 ↑ exit
This screen only dispays if ResLink and an oximeter are connected

Stopping Treatment

To stop treatment at any time, remove your mask and press ⏻. If your clinician has enabled SmartStart/Stop, simply remove your mask and treatment will end.

Note: *SmartStart/Stop does not operate if:*

- *you have a Full Face Mask; or*
- *Leak Alert is enabled.*

Using the Mask-Fitting feature

The VPAP IV and VPAP IV ST include a mask-fitting feature to help you fit your mask properly. The mask-fitting feature delivers air pressure for a three-minute period, prior to starting treatment, for checking and adjusting your mask fit to minimise leaks.

To use the mask-fitting feature:

1 Fit your mask as described in the mask user instructions.

2 Hold down ⏻ for at least three seconds until air pressure delivery starts and the following screen appears:

The LCD displays a mask-fit star rating from zero to five stars. Three to five stars indicates a good fit or better. Zero to two stars indicates that the mask needs to be adjusted.

Reminders on the VPAP LCD

Your clinician may have set your VPAP device to remind you about important events, such as when to replace your mask, when to insert your Data Card and so on. The reminder message is displayed on the LCD and is visible if the device is not delivering therapy. The backlight on the LCD flashes when a message is displayed. Your clinician can set any of the following reminders on your LCD:

Message	Description	Action
INSERT CARD	May appear if your device is Data Card enabled.	Insert your Data Card and follow any instructions that your clinician has given you. When you have done this, the message will disappear from the LCD. Pressing (Ok) will also remove the message.
REPLACE MASK	Reminds you that your mask is due for replacement.	Press (Ok) to remove the message from your LCD and replace your mask with a new one.
CALL PROVIDER	Reminds you to contact your clinician; for example to discuss your therapy.	Press (Ok) to remove the message from your LCD and contact your clinician/ service provider.
REPLACE FILTER	Reminds you to replace the air filter on your device.	Press (Ok) to remove the message from your LCD and replace the air filter.
SERVICE DUE	Reminds you to return your device for service.	Press (Ok) to remove the message from your LCD and contact your clinician/ service provider.
Customised messages	Your clinician may also set reminders for other reasons; for example to call a particular person or number.	Press (Ok) to remove the message from your LCD and contact your clinician/ service provider.

Smart Data™

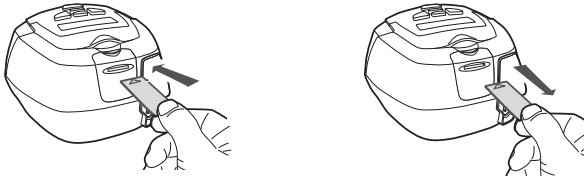
Smart Data menus only appear if enabled by the clinician. Your clinician can set any of the following Smart Data options:

Message	Description
PRESSURE	Displays the therapy pressure from the previous session.
MASK FIT	Displays the mask-fit star rating from the previous session.
USAGE	Displays the usage hours from the previous session.
AUTO APPEAR	If ON is selected, Smart Data screens are automatically displayed when you turn on your device.

Using the Data Card

If your clinician needs to review your treatment, they will ask you to use the Data Card to copy data from your VPAP device and return the card to them.

Copying Data onto a Data Card



1. Switch on your VPAP and wait until you see the standby (Ramp) screen.
2. Hold the Data Card with the arrow facing up and insert it into the Data Card slot until it stops. Data copying starts automatically.
   The "Card Inserted Please Wait" message is displayed on the LCD while data is being copied. Copying takes up to 30 seconds.
   The "Copy Complete Remove Card" message is displayed on the LCD when copying has finished.
3. Remove the Data Card by gripping the end of the Data Card and pulling it out.
4. Store the Data Card in its protective folder when not in use.
5. Return the card in its protective folder to your clinician using a postal envelope.

Updating Settings on your VPAP

If your clinician has provided a Data Card with new device settings:

1. With the device in standby (Ramp) mode, insert the Data Card into the slot on the Data Card module. Updating will start automatically.
   The "Card Inserted Please Wait" message is displayed on the LCD while updating is in progress. Updating takes approximately five seconds.
   The "Settings Success Remove Card" message is displayed on the LCD if the settings were updated successfully.

   Note: *This message only appears once. If you re-insert the Data Card after you have updated your settings, this message is not displayed.*
2. Remove the Data Card from the VPAP device.
3. Store the Data Card in its protective folder when not in use.

WARNING

If your clinician has told you to use the Data Card to update the settings on your device and the "Settings Success" message does not appear, contact your clinician immediately.

Traveling with the VPAP IV and VPAP IV ST

International Use

Your VPAP flow generator has an internal power adapter that enables it to operate in other countries. It will operate on power supplies of 100–240V and 50–60Hz. No special adjustment is necessary, but you will require an approved power cord for that country.

Use on an Aircraft

Please consult the medical services department of your carrier if you intend to use your VPAP device on an aircraft.

Note: *You should not use your VPAP device while the aircraft is taking off or landing.*

Use with DC Power

You must use a ResMed DC/DC Converter 24V/50W to connect your VPAP to a 12V or 24V DC power source. Contact your equipment supplier or ResMed for details.

WARNING

The device should not be connected to both AC and DC power sources simultaneously.

Cleaning and Maintenance

You should regularly carry out the cleaning and maintenance described in this section. Refer to your mask and humidifier manuals for detailed instructions regarding the care of those devices.

Daily

Disconnect the air tubing and hang it in a clean, dry place until next use.

Weekly

1. Remove the air tubing from the VPAP device *and* the mask.
2. Wash the air tubing in warm water using mild detergent.
3. Rinse thoroughly, hang, and allow to dry.
4. Before the next use, reconnect the air tubing to the air outlet and mask.

Monthly

1. Clean the exterior of the VPAP with a damp cloth and mild liquid soap.
2. Check the air filter for holes and blockage by dirt or dust.

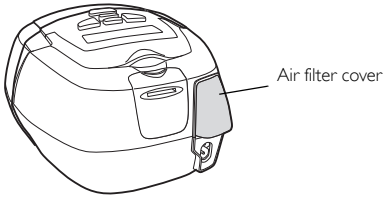
WARNING

- Beware of electric shock. Do not immerse the unit or power cord in water. Always unplug the unit before cleaning and be sure it is dry before plugging back in.
- The mask system and air tubing are subject to normal wear and tear. Inspect them regularly for damage.

Replacing the Air Filter

Replace the air filter every six months (or more often if necessary).

1. Remove the air filter cover at the back of the VPAP device.



2. Remove and discard the old air filter.
3. Insert a new filter with the blue-tinted side facing out from the device.
4. Replace the air filter cover.

WARNING

- Do not wash the air filter. The air filter is not washable or reusable.
- The air filter cover protects the device in the event of accidental liquid spillage onto the device. Ensure the air filter and air filter cover are fitted at all times.

Servicing

This device is intended to provide safe and reliable operation when operated and maintained in accordance with the instructions provided by ResMed. To ensure that your device continues to provide optimum performance it is recommended that this product be inspected by an authorised ResMed Service Centre five years from the date of purchase. Applicable ResMed warranty details are provided with the device at the time of original supply. Of course, as with all electrical devices, if any irregularity becomes apparent, you should exercise caution and have the device inspected by an authorised ResMed service centre.

CAUTION

- Do not attempt to open the VPAP case. There are no user serviceable parts inside.
- Inspection and repair should only be performed by an authorised agent. Under no circumstances should you attempt to service or repair the flow generator yourself.

Troubleshooting

If there is a problem, try the following suggestions. If the problem cannot be solved, contact your equipment supplier or ResMed. Do not attempt to open the device.

Problem/Possible Cause	Solution
No display	
Power is not connected.	Ensure the power cable is connected and the power switch (if available) is on.
Insufficient air delivered from the VPAP device	
Ramp time is in use.	Wait for air pressure to build up or change ramp time.
Air filter is dirty.	Replace air filter.
Air tubing is not connected properly.	Check air tubing.
Mask and headgear are not positioned correctly.	Adjust position of mask and headgear.
Cushion seated incorrectly causing excessive leak.	Adjust headgear or re-fit cushion.
Humidifier control dial set too high, resulting in accumulation of water in the air tubing.	Turn humidifier control down and empty the water from the air tubing.
Device does not start when you breathe into the mask	
Breath is not deep enough to trigger SmartStart/Stop.	Take a deep breath in and out through the mask.
There is excessive leak.	Adjust position of mask and headgear.
	Air tubing not connected properly. Connect firmly at both ends.
SmartStart/Stop is disabled. *Note: SmartStart/Stop is not available if you are using a Full Face Mask or if Leak Alert is enabled.*	Enable SmartStart/Stop.
Device does not stop when you remove your mask	
SmartStart/Stop is not enabled. *Note: SmartStart/Stop is not available if you are using a Full Face Mask or if Leak Alert is enabled.*	Enable SmartStart/Stop.
SmartStart/Stop is enabled but the flow generator does not stop automatically when you remove your mask	
Incompatible mask system being used.	Use only equipment recommended by ResMed.
Displays error message: `Check tube!! Key if done`	
The air tubing is loose or blocked.	Check that the air tubing is connected securely to your mask and the air outlet. Press the Start/Stop key to restart the device. If this does not clear the message, disconnect the power cord and then reconnect it to restart the device.

Problem/Possible Cause	Solution
Displays error message: `Exxxx Call Service` (where xxxx defines an error)	
Component failure.	Record error number and contact your ResMed service centre.
Displays error message: `HIGH LEAK!!! Adjust Mask`	
You have experienced excessively high leak levels for more than 20 seconds.	Check that your air tubing is connected properly. Adjust headgear.
The following message is displayed on the LCD after you try to update settings or copy data to the Data Card: `Card Error Remove Card`	
Data Card is not inserted correctly.	Ensure that the Data Card is inserted with the arrow facing up as far as it can go.
You may have removed the Data Card before settings were copied to the VPAP device.	Reinsert the Data Card and wait for the **`Settings Success Remove Card`** or **`Copy Complete Remove Card`** message to appear on the LCD.
The following message is displayed on the LCD after you try to update the settings using the Data Card: `Settings Invalid Remove Card`	
The identification details on the Data Card do not match the details on your device.	Contact your clinician/service provider immediately.
The following message is displayed on the LCD after you try to update the settings using the Data Card: `Settings Error Remove Card`	
There is a data error on the Data Card.	Contact your clinician/service provider immediately.
The following message is NOT displayed on the LCD after you try to update the settings using the Data Card: `Settings Success Remove Card`	
The settings were not updated.	Contact your clinician/service provider immediately.

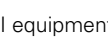
Technical Specifications

Operating pressure range	2 to 25 cm H_2O
Maximum single fault pressure	40 cm H_2O
Pressure measurement tolerance	±0.5 cm H_2O ± 4% of the measured reading
Flow measurement tolerance	±0.1 or 20% of reading, whichever is greater
S, ST and T modes	IPAP: 4 to 25 cm H_2O (measured at the mask); EPAP: 2 to 25 cm H_2O (measured at the mask); Pressure Support: 0 to 23 cm H_2O
CPAP mode	4 to 20 cm H_2O (measured at the mask)
DECLARED DUAL-NUMBER NOISE EMISSION VALUES in accordance with ISO 4871:	
Sound pressure level	26 dBA with uncertainty of 2 dBA as measured according to ISO 17510-1: 2002 28 dBA with uncertainty of 2 dBA as measured according to ISO 17510-1: 2007
Sound power level	36 dBA with uncertainty of 2 dBA as measured according to ISO 17510-1: 2007
Dimensions (L x W x H)	112 mm x 164 mm x 145 mm
Weight	1.3 kg
Power supply	Input range 100–240V, 50–60Hz, 40VA (typical power consumption), < 100VA (maximum power consumption)
Housing construction	Flame retardant engineering thermoplastic
Operating temperature	+5°C to +35°C
Operating humidity	10–95% non-condensing
Storage and transport temperature	-20°C to +60°C
Storage and transport humidity	10–95% non-condensing
Operating altitude	Sea level to 2,600 m
Electromagnetic compatibility	Product complies with all applicable electromagnetic compatibility requirements (EMC) according to IEC60601-1-2, for residential, commercial, and light industry environments
Air filter	Two-layered, powder-bonded, polyester non-woven fiber
Air tubing	Flexible plastic, 1 x 2 m
Air outlet	The 22 mm conical air outlet complies with ISO 5356-1
IEC 60601-1 classification	Class II (double insulation), Type CF

Notes:

- *The manufacturer reserves the right to change these specifications without notice.*
- *Pressure may be displayed in cm H_20 or hPa.*

Symbols Which Appear On The Device

Caution; Follow instructions for use; Drip proof; Type CF equipment;
Dangerous voltage; Class II equipment;  Start/Stop and mask-fit;
Manufacturer; **Environmental information**

WEEE 2002/96/EC is a European Directive that requires the proper disposal of electrical and electronic equipment. This device should be disposed of separately, not as unsorted municipal waste. To dispose of your device, you should use appropriate collection, reuse and recycling systems available in your region. The use of these collection, reuse and recycling systems is designed to reduce pressure on natural resources and prevent hazardous substances from damaging the environment.
If you need information on these disposal systems, please contact your local waste administration. The crossed-bin symbol invites you to use these disposal systems. If you require information on collection and disposal of your ResMed device please contact your ResMed office, local distributor or go to www.resmed.com/environment.

General Warnings and Cautions

Warnings

- Advice contained in this manual should not supersede instructions given by the prescribing physician.
- A patient should not connect a device to the data communication port unless instructed to do so by their health care provider or physician. Only ResMed products are designed to be connected to the data communication port. Connecting other devices could result in injury, or damage to the VPAP device.
- These VPAP devices should only be used with masks (and connectors*) recommended by ResMed, or by a physician or respiratory therapist. A mask should not be used unless the VPAP device is turned on and operating properly. The vent hole or holes associated with the mask should never be blocked.
  Explanation: These VPAP devices are intended to be used with special masks (or connectors*) which have vent holes to allow continuous flow of air out of the mask. When the device is turned on and functioning properly, new air from the device flushes the exhaled air out through the mask vent holes. However, when the device is not operating, insufficient fresh air will be provided through the mask, and the exhaled air may be rebreathed. Rebreathing of exhaled air for longer than several minutes can, in some circumstances, lead to suffocation. This applies to most Positive Airway Pressure devices.
- In the event of power failure† or machine malfunction, remove the mask.
- These VPAP devices can be set to deliver pressures up to 25 cm H_2O. In the unlikely event of certain fault conditions, pressures up to 40 cm H_2O are possible.
- Follow all precautions when using supplemental oxygen.
- Oxygen flow must be turned off when the flow generator is not operating, so that unused oxygen does not accumulate within the flow generator enclosure and create a risk of fire.
- If the oxygen has been left on, turn off the device, then wait 30 minutes before turning on the device again.
- At a fixed rate of supplemental oxygen flow, the inhaled oxygen concentration varies, depending on the pressure settings, patient breathing pattern, mask, point of application and leak rate.
- Do not use the VPAP IV or VPAP IV ST if there are obvious external defects or unexplained changes in performance.
- Do not open the VPAP case. There are no user serviceable parts inside. Repairs and internal servicing should only be performed by an authorised service agent.
- Explosion hazard—do not use in the vicinity of flammable anesthetics.

Cautions

- At low pressures, the flow through the exhalation ports of your mask may not clear all exhaled gas from the tubing. Some rebreathing may occur.
- The airflow for breathing produced by this device can be as much as 11°F (6°C) higher than the temperature of the room. Caution should be exercised if the room temperature is warmer than 90°F (32°C).
- When AC mains power (100–240V AC) is not available, always use a ResMed DC/DC Converter 24V/50W. (The DC/DC Converter 24V/50W is available as an optional accessory. It is not supplied with all models.)

Note: *The above are general warnings and cautions. Specific warnings, cautions and notes appear with the relevant instructions in the manual.*

* Ports may be incorporated into the mask or in connectors that are near the mask.

† During partial (below rated minimum voltage) or total power failure, IPAP and EPAP pressures will not be delivered. When power is restored, operation will recommence with no change to settings.

Guidance and Manufacturer's Declaration—Electromagnetic Emissions and Immunity

Guidance and manufacturer's declaration—electromagnetic emissions

The VPAP IV and VPAP IV ST devices are intended for use in the electromagnetic environment specified below. The customer or the user of the VPAP device should assure that the device is used in such an environment.

Emissions test	Compliance	Electromagnetic environment—guidance
RF emissions CISPR11	Group 1	The VPAP device uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11 with serial adapter	Class B	The VPAP device is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage network that supplies buildings used for domestic purposes.
RF emissions CISPR 11 with USB adapter	Class B	
Harmonic Emissions IEC 61000-3-2	Class A	
Voltage Fluctuations/Flicker Emissions IEC 61000-3-3	Complies	

Warnings: The VPAP device should not be used adjacent to or stacked with other equipment.
If adjacent or stacked use is necessary, the VPAP device should be observed to verify normal operation in the configuration in which it will be used. The use of accessories (eg, humidifiers) other than those specified in this manual is not recommended. They may result in increased emissions or decreased immunity of the VPAP device.

Recommended separation distances between portable and mobile RF communications equipment and the VPAP series of devices

The VPAP device is intended for use in an environment in which radiated RF disturbances are controlled. The customer or the user of the VPAP device can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the VPAP device as recommended below, according to the maximum output power of the communications equipment.

	Separation distance according to frequency of transmitter (m)		
Rated maximum output power of transmitter (W)	150 kHz to 80 MHz $d = 1.17 \sqrt{P}$	80 MHz to 800 MHz $d = 0.35 \sqrt{P}$	800 MHz to 2.5 GHz $d = 0.7 \sqrt{P}$
0.01	0.17	0.04	0.07
0.1	0.37	0.11	0.22
1	1.17	0.35	0.7
10	3.69	1.11	2.21
100	11.70	3.50	7.0

For transmitters rated at a maximum output power not listed above, the recommended separation distance d in metres (m) can be determined using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.
NOTE 1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.
NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

Guidance and manufacturer's declaration—electromagnetic immunity

The VPAP device is intended for use in the electromagnetic environment specified below. The customer or the user of the VPAP device should assure that the device is used in such an environment.

Immunity test	IEC60601-1-2 test level	Compliance level	Electromagnetic environment—guidance
Electrostatic discharge (ESD) IEC 61000-4-2	±6 kV contact ±8 kV air	±6 kV contact ±8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/ output lines	±2 kV Not Applicable	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV differential mode ±2 kV common mode	±1 kV differential mode ±2 kV common mode	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines. IEC 61000-4-11	<5% Ut (>95% dip in Ut) for 0.5 cycle 40% Ut (60% dip in Ut) for 5 cycles 70% Ut (30% dip in Ut) for 25 cycles <5% Ut (>95%dip in Ut) for 5 sec	< 12V (>95% dip in 240V) for 0.5 cycle 96V (60% dip in 240V) for 5 cycles 168V (30% dip in 240V) for 25 cycles <12V (>95%dip in 240V) for 5 sec	Mains power quality should be that of a typical commercial or hospital environment. If the user of the VPAP device requires continued operation during power mains interruptions, it is recommended that the VPAP device be powered from an uninterruptible power source.
Power frequency (50/60Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
Conducted RF IEC 61000-4-6 Radiated RF IEC 61000-4-3	3 Vrms 150 kHz to 80 MHz 10 V/m 80 MHz to 2.5 GHz	3 Vrms 10 V/m	Portable and mobile RF communications equipment should be used no closer to any part of the VPAP device, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance $d = 1.17 \sqrt{P}$ $d = 0.35 \sqrt{P}$ 80 MHz to 800 MHz $d = 0.70 \sqrt{P}$ 800 MHz to 2.5 GHz where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey,[a] should be less than the compliance level in each frequency range.[b] Interference may occur in the vicinity of equipment marked with this symbol

NOTE 1: Ut is the AC mains voltage prior to application of the test level.
NOTE 2: At 80 MHz and 800 MHz, the higher frequency range applies.
NOTE 3: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

[a] Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the VPAP device is used exceeds the applicable RF compliance level above, the VPAP device should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the VPAP device.

[b] Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 10 V/m.

Limited Warranty

ResMed warrants that your ResMed product shall be free from defects in material and workmanship for the period specified below from the date of purchase by the initial consumer. This warranty is not transferable.

Product	Warranty Period
ResMed humidifiers, ResControl™, ResLink™, ResTraxx™	1 Year
ResMed flow generators	2 Years
Accessories, mask systems (including mask frame, cushion, headgear and tubing). Excludes single-use devices.	90 Days

Note: *Some models are not available in all regions.*

If the product fails under conditions of normal use, ResMed will repair or replace, at its option, the defective product or any of its components. This Limited Warranty does not cover:

a) any damage caused as a result of improper use, abuse, modification or alteration of the product;

b) repairs carried out by any service organisation that has not been expressly authorised by ResMed to perform such repairs;

c) any damage or contamination due to cigarette, pipe, cigar or other smoke;

d) any damage caused by water being spilled on or into a flow generator.

Warranty is void on product sold, or resold, outside the region of original purchase. Warranty claims on defective product must be made by the initial consumer at the point of purchase.

This warranty is in lieu of all other express or implied warranties, including any implied warranty of merchantability or fitness for a particular purpose. Some regions or states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

ResMed shall not be responsible for any incidental or consequential damages claimed to have occurred as a result of the sale, installation or use of any ResMed product. Some regions or states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from region to region.

For further information on your warranty rights, contact your local ResMed dealer or ResMed office.

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